

Name(s) of Risk Team Members: P. Bergh, J. Young, D. Stillwell, J. Williams, R. Karol, J. Scott.			Point Value → Parameter ↓	1	2	3	4	5					
Area/Facility Description Title: Collider-Accelerator Department			Occupancy or Use (A)	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift					
Area/Facility # (if applicable): General Facility FRA 3-06													
Area/Facility Description: General Facility-Wide Ionizing Radiation			Severity (B)	First Aid Only	Medical Treatment	Lost Time	Partial Disability	Death or Permanent Disability					
			Likelihood (C)	Extremely Unlikely	Unlikely	Possible	Probable	Multiple					
Approved by: <i>E. Lessard</i> Date: 5/5/2006 Rev.#: 0													
Reason for Revision (if applicable): Annual Review						Comments:							
				Risk with Controls in Place				Risk with Additional Controls in Place					
Physical Item or Activity	Hazard(s)	Control(s)	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	Control(s) Added to Reduce Risk		Occupancy A	Severity B	Likelihood C	Risk* AxBxC	% Risk Reduction
Primary beam	Unshielded proton, electron or ion beam, external radiation	ACS, PASS, security sweeps, postings, crash buttons and chords, C-AD area classification, shielding, dosimetry, training, RSC reviews	1	5	1	5							
Secondary beam	Unshielded beams, external radiation	ACS, PASS, security sweeps, postings, crash buttons and chords, C-AD area classification, shielding, dosimetry, training, locked gates, fenced in areas, RCD surveys, RWPs, work planning, RSC reviews, RCD oversight	1	4	2	8							
Target Areas	Unshielded beam, residual radiation, external radiation	ACS, PASS, security sweeps, postings, crash buttons and chords, C-AD area classification, shielding, dosimetry, training, locked gates, fenced in areas, RCD surveys, RWPs, work planning, RSC reviews, RCD oversight, extra shielding around targets, special keys to target areas	1	5	1	5							
General area radiation	Residual radiation, external radiation	Postings, training, shielding, RCD surveys, TLD area monitoring program, RCD oversight, RWP, work planning	5	1	4	20							
Contamination	Residual radiation, activated fluids, external or internal radiation	Postings, training, RCD surveys, RCD oversight, RWP, work planning, PPE, friskers, keeping contamination areas minimized, response to spills	2	1	4	8							
Internal radiation	Internal radiation	RWP, work planning, PPE, WB counting, sealed tunnel/cave gates to reduce exposure to activated air, delay before entering primary areas to allow decay of isotopes, HEPA vacuums, air sampling, routine contamination survey program, RCD oversight	2	1	3	6							

Storage of Radioactive Materials	Residual radiation, external radiation	Fenced and posted areas, dosimetry, RWPs, work planning, RCD oversight, inspections, RMA inventories, some areas locked, shielding	5	1	4	20					
Radioactive Sources	Internal or external radiation	Training, BNL and C-AD source custodians, source inventory, shielding, locked boxes, leak checks, posting, dosimetry, Chipmunk calibration procedures, locked cage for Chipmunk source	5	2	2	20					
RF Cavities	X-rays	ACS, PASS, shielding, training, RCD surveys, postings, locked areas, procedures for test areas, RWP, work planning	1	5	1	5					
Tours	Internal or external radiation	Postings, trained escorts, RCD concurrence to enter radiation areas, RWP, work planning, training waiver, red TLD, BNL minors policy	3	1	2	6					
Industrial X-Ray Radiography	Unshielded X-Ray exposure	Qualified X-Ray equipment operator, 60 feet of power cable use between tube head and controls, work orders, RWPs, Alarming dosimeters, TLDs, visual boundary control, postings, procedures, HP coverage, surveys.	2	2	1	4					
Further Description of Controls Added to Reduce Risk:											
*Risk:	0 to 20	21 to 40	41-60				61 to 80			81 or greater	
	Negligible	Acceptable	Moderate				Substantial			Intolerable	